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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,699

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Reinhold Koch

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EXAMINER

KAPLAN, HAL IRA

ART UNIT

PAPER NUMBER

2836

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,699	Applicant(s) KOCH ET AL.	
	Examiner Hal I. Kaplan	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2006 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/5/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities: Abstract, line 16, "(Fig. 1)" should be removed. Page 16, line 35, "than" should be "that". Page 17, line 29, "13 only together" should be "12 only together".

Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of logic devices of claims 34 and 40, the separate control circuits of claim 41, and the groups and common control circuit of claim 42 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

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changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 22, 26, 30, 32-33, and 37 are objected to because of the following informalities: Claim 22, line 9, "signal" should be "single". Claim 26, line 2, "to the input of the input variables IA,IB" should be deleted (variables are abstract data structures and not tangible hardware which can receive signals). For examination purposes, it has been assumed that the control current signals are sent via input lines to the logic device. Claim 30, line 1, "claim 8" should be "claim 29". Claim 30, lines 1-2, "the control current signals" lacks proper antecedent basis. Claim 32, line 2, "coercitive" should be "coercive". Claim 33, line 2, "coercitive" should be "coercive". Claim 37, line 2, "the magnetoresistive element" lacks proper antecedent basis. For examination purposes, it has been assumed that the single magnetic element receives the operator control signal. Claim 37, line 2, "with which" should be "via which". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 22-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 22 and 36 recite the limitations "one single magnetic element with two magnetic setting elements" and "one single magnetic element having two magnetic setting elements". It is unclear whether the device has one or two separate magnetic elements, as the magnetic setting elements are magnetic and thus appear to comprise two separate magnetic elements. For examination purposes, it has been assumed that the magnetic setting elements may be either connected or separate, as long as they are magnetically isolated from each other, and that the magnetic setting elements are together considered one magnetic element. Claims 23-35 and 37-42 inherit this deficiency.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 22-36 and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the German patent of Bangert et al. (DE 100 53 206) in view of the US patent of Johnson (6,140,838). A machine translation of DE 100 53 206 has been provided, and a manual translation will be provided when it becomes available.

As to claims 22, 31, and 36, Bangert discloses a method for operating a magnetic logic device, comprising the steps of: setting the starting state of the magnetic logic device for selecting and executing an operator function with two input signals (A,B), wherein the magnetic logic device includes a magnetic element (2) with two magnetic setting elements (soft and hard magnetic reference layers) which are set with the input signals (A,B), and subsequently executing the operation with the magnetic logic device (see paragraphs 23-26). Bangert does not disclose selecting an operator

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control signal and setting the starting state of the magnetic logic device with the selected operator control signal.

Johnson discloses a control circuit (615) for providing an operator control signal (C), and for setting the starting state of a magnetic logic device (100) at a starting state (input signals A,B) corresponding to the operator control signal (C) (see column 13, lines 9-25; column 9, lines 15-27; and Figures 4A, 4B, and 6). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have modified Bangert by using a control circuit to generate the input signals to set the magnetic setting elements based on an operating control signal, in order to enable automatic control of the magnetic logic device from a single control signal.

As to claims 23-24, the starting states of Bangert are characteristic of a logic function from the group of logic AND and OR and/or NAND and NOR functions (see paragraphs 18 and 26-27).

As to claim 25, the control signals (A,B) of Bangert are control current signals under the influence of which magnetic fields are generated, wherein the respective logic function is set in the logic device by the magnetic fields (see paragraph 26).

As to claim 26 and 29-30, the control current signals (A,B) of Bangert are input current signals and are sent via input lines into the logic device (see paragraphs 24 and 26).

As to claim 27, the control current signals of Bangert have constant (discrete) current values (see paragraph 26).

As to claim 28, the input signals (A,B) of Johnson include switched-mode currents (see column 9, lines 15-28 and 41-42).

As to claim 32, the coercive field strengths and the current values of the input signals (A,B) of Bangert in view of Johnson are coordinated so that both setting elements can be set by the operator control signal (C) (see Johnson, column 9, lines 15-28 and column 13, lines 9-25).

As to claim 33, Bangert in view of Johnson do not specify the coercive field strengths of the setting elements; however, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have set the coercive field strength of one of the setting elements so high it cannot be changed with the input current signals, because selections of values of components and operational levels for an electronic device are engineering decisions based upon the system's intended use and the expected requirements of the other systems with which it will interface. See MPEP §2144.04(IV)(A). In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

As to claims 34-35 and 40-42, Bangert in view of Johnson do not disclose a plurality of logic devices; however, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have used a plurality of logic devices, with respect

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control circuits or control signals from a common control circuit, to execute logic operations either simultaneously or in succession according to the method of Bangert in view of Johnson, because it has been held that duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). See MPEP §2144.04(VI)(B).

As to claim 38, the control circuit (615) of Johnson has an operator function selector (additional processing logic) with which the operator control signal (C) is selectable (see column 13, lines 16-22).

As to claim 39, the magnetic element (2) of Bangert includes a magnetoresistive element (see paragraph 23).

Allowable Subject Matter

12. Claim 37 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims and correct the informalities.

13. The following is a statement of reasons for the indication of allowable subject matter:

Claim 37 contains allowable subject matter because none of the prior art of record discloses or suggests the claimed control circuit having a current source and a switching device via which the magnetic/magnetoresistive element can receive the operator control signal.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal I. Kaplan whose telephone number is 571-272-8587. The examiner can normally be reached on M-F 9:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on 571-272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

hik
/Albert W Paladini/
Primary Examiner, Art Unit 2836

5/11/09